

Notice of Allowability

Application No.

10/634,723

Examiner

Fritz Alphonse

Applicant(s)

VASIC ET AL.

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the communication filed on 35/18/2006.
2. ☐ The allowed claim(s) is/are 1,3-6,8-10,12-18 and 20-28.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Jacques Louis Jacques
JACQUES LOUIS JACQUES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

DETAILED ACTION

0.1 This Office Action is in response to the amendment filed on 4/10/2006. Claims 1, 3-6, 8-10, 12-18, 20-29 are pending; claims 2, 7, 11, 19 are canceled.

REASONS FOR ALLOWANCE

1. After further search and thorough examination of the present application claims 1, 3-6, 8-10, 12-18, 20-29 are found to be in condition for allowance over the prior art of record.

The following is an Examiner's statement of reasons for allowance: The present invention is concerned with a system and method for decoding information bearing sequences received from an intersymbol-interference communication channel, from a noisy communication channel, or from recording devices.

Claim 1 is allowable because none of the cited references either singular or in combination teaches "A system for decoding channel signals having Reed-Muller coded information comprising: a first Reed-Muller message passing device coupled to the first soft-output device for decoding the initial stage code bits estimated values and for using the initial stage code bit bits reliabilities an to provide estimated values of message bits and to provide corresponding initial stage message bits reliabilities therefrom; an assembler coupled to the first Reed-Muller message passing device for converting the initial stage message bits reliabilities to subsequent stage incoming code bits reliabilities corresponding to code bits in the corresponding channel coded signal; and the second soft-input device coupled to said assembler for providing subsequent stage code bits estimated values and for providing subsequent stage outgoing code

bits reliabilities from the corresponding channel coded signal and the corresponding subsequent stage incoming code bits reliabilities.”

Claim 6 is allowable because none of the cited references either singular or in combination discloses “decoding the initial stage code bits estimated values and using the initial stage code bits reliabilities in a first Reed-Muller message passing device to provide therefrom estimated values of initial stage message bits and corresponding initial stage message bits reliabilities represented by log-bit likelihoods; passing at least a representation of the log-bit probability vector initial stage message bits reliabilities to a second soft-output device; and generating an updated code bit vector and an updated log-bit probability vector subsequent stage code bits estimated values and corresponding subsequent stage code bits outgoing reliabilities from the corresponding channel coded signal and the representation of the corresponding initial stage message bits reliabilities using the second soft-output device.”

Claim 12 is allowable because none of the cited references either singular or in combination discloses “a first Reed-Muller message passing device coupled to the first soft-output device for decoding the initial stage code bits estimated values and for using the initial stage code bit bits reliabilities to provide estimated values of message bits and to provide corresponding initial stage message bits reliabilities therefrom; an assembler coupled to the first Reed-Muller message passing device for converting the initial stage message bits reliabilities to subsequent stage incoming code bits reliabilities corresponding to code bits in the corresponding channel coded signal; and the second soft-input device coupled to said assembler for providing

subsequent stage code bits estimated values and for providing subsequent stage outgoing code bits reliabilities from the corresponding channel coded signal and the corresponding subsequent stage incoming code bits reliabilities.”

Claim 17 is allowable because none of the cited references either singular or in combination discloses “ initial message bit likelihoods for each message bit in an initial code bit sequence of a corresponding Reed-Muller coded channel signal; determining subsequent code bit likelihoods based on the message bit likelihoods; and subsequent message bit likelihoods based on the subsequent code bit likelihoods and the Reed-Muller coded channel.”

Claim 21 is allowable because none of the cited references either singular or in combination discloses “a soft output device for processing the encoded information from the encoded signal into code bits and associated code bit likelihoods; and a Reed-Muller message passing device for processing the code bits and the associated code bit likelihoods into message bits and message bit likelihoods; and coupling means between an output of the Reed-Muller message passing device in a decoding block and an input for a next soft-input device in the next decoding block in the sequence, wherein a decoding block in the sequence coupled to other decoding blocks in the sequence only by its soft-output device produces the decoded signal.”

These limitations, in conjunction with all other limitations of the base claims were not shown by, would not have been obvious over, would have been fairly suggested by the prior art of record.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231

or faxed to: (703) 872-9306 for all formal communications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse, whose telephone number is (571) 272-3813. The examiner can normally be reached on M-F, 8:30-6:00, Alt. Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques, can be reached at (571) 272-6962.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3824

Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Fritz Alphonse

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August 27, 2007


JACQUES LOUIS JACQUES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100